

Software Regression Testing

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COMOPTTEVFOR

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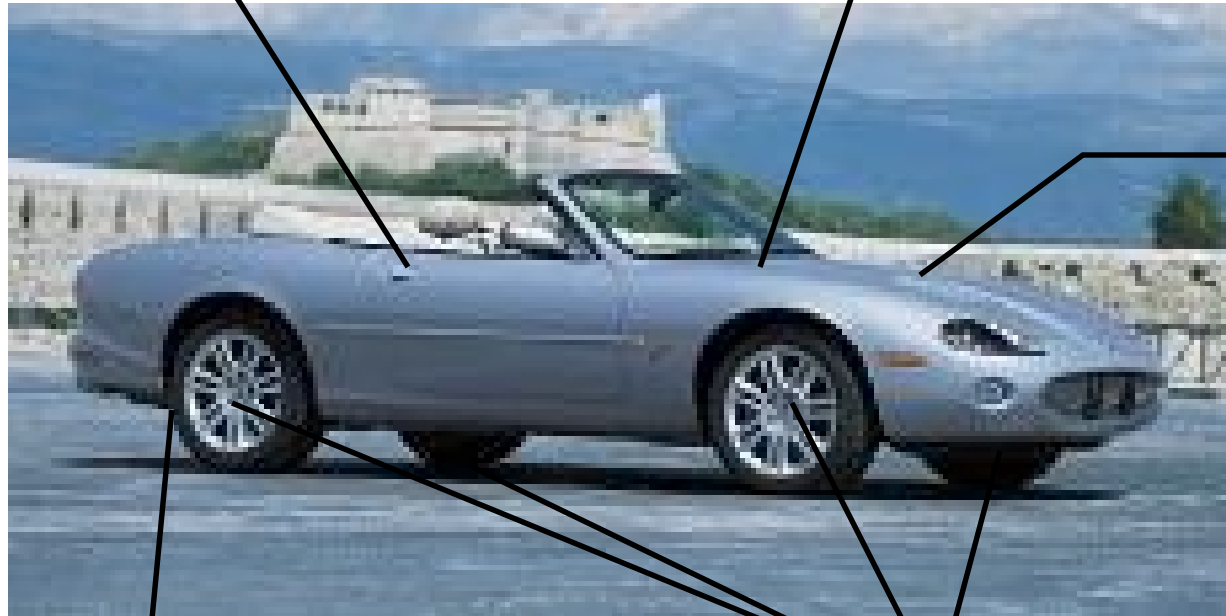
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Secure Remote
Entry

Computer
Controlled Power
Steering

Computer
Controlled Fuel
Regulation

Computer
Controlled
Environmental
Monitoring

Computer
Controlled Anti-
Lock Brakes



Testing ...

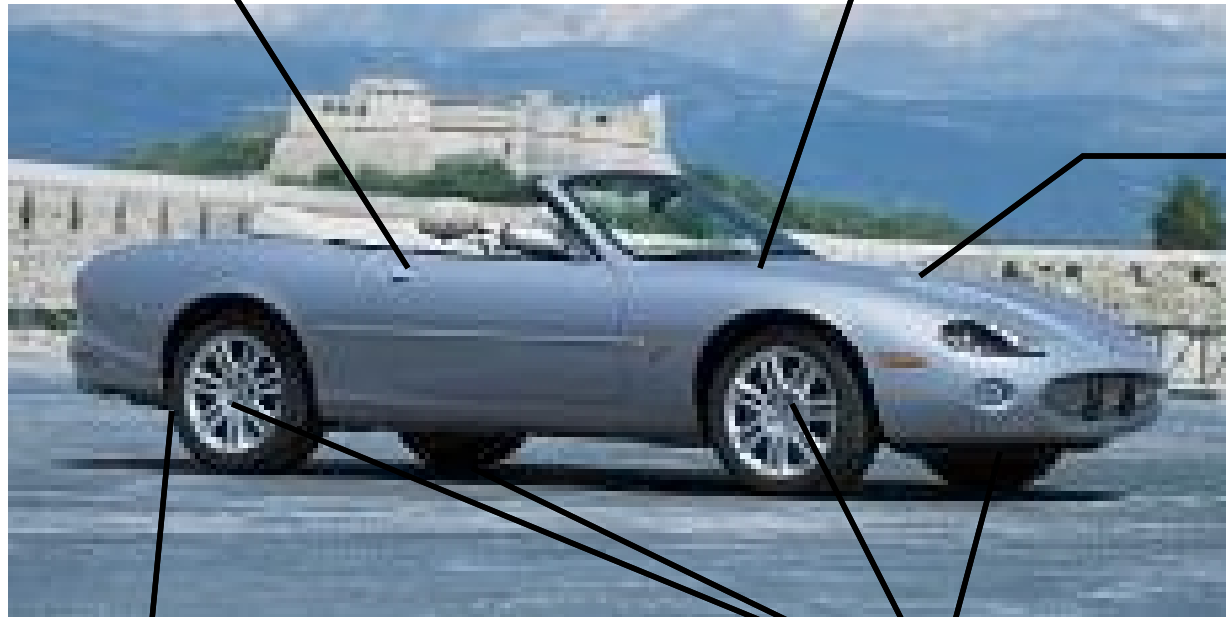
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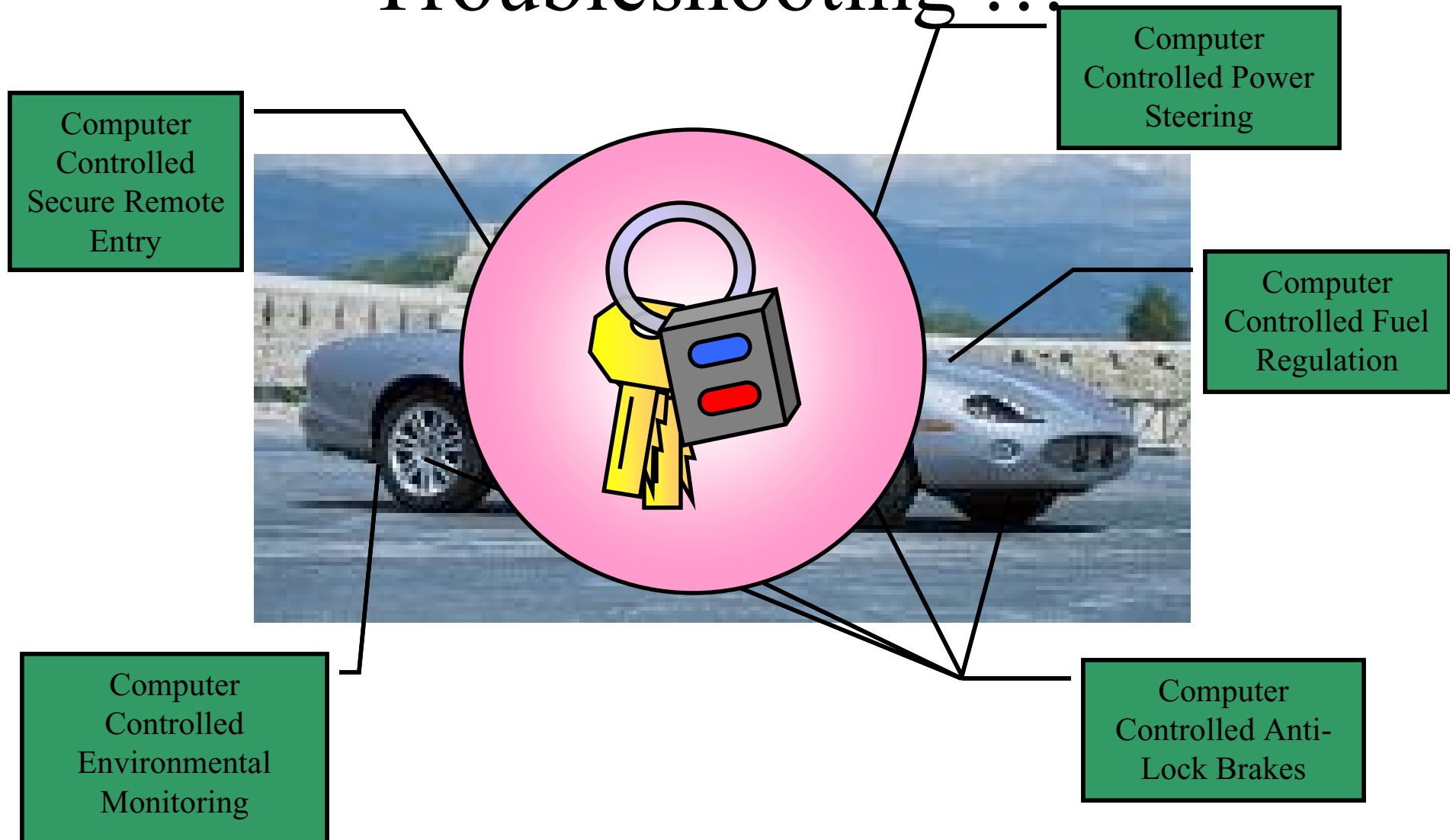
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Troubleshooting ...



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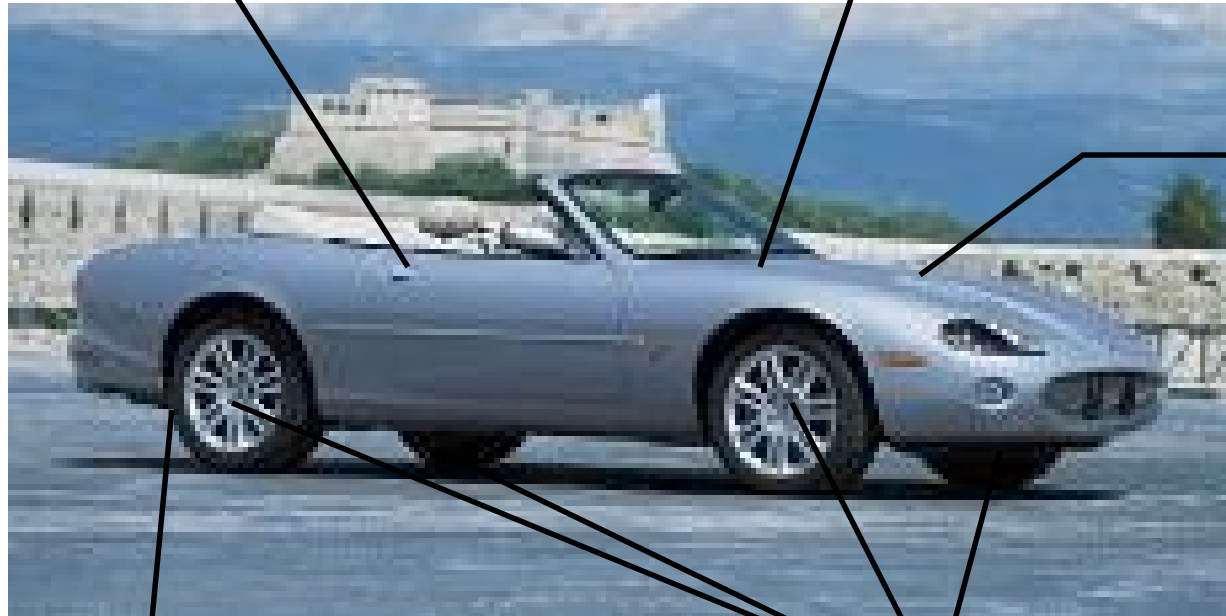
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Testing ...

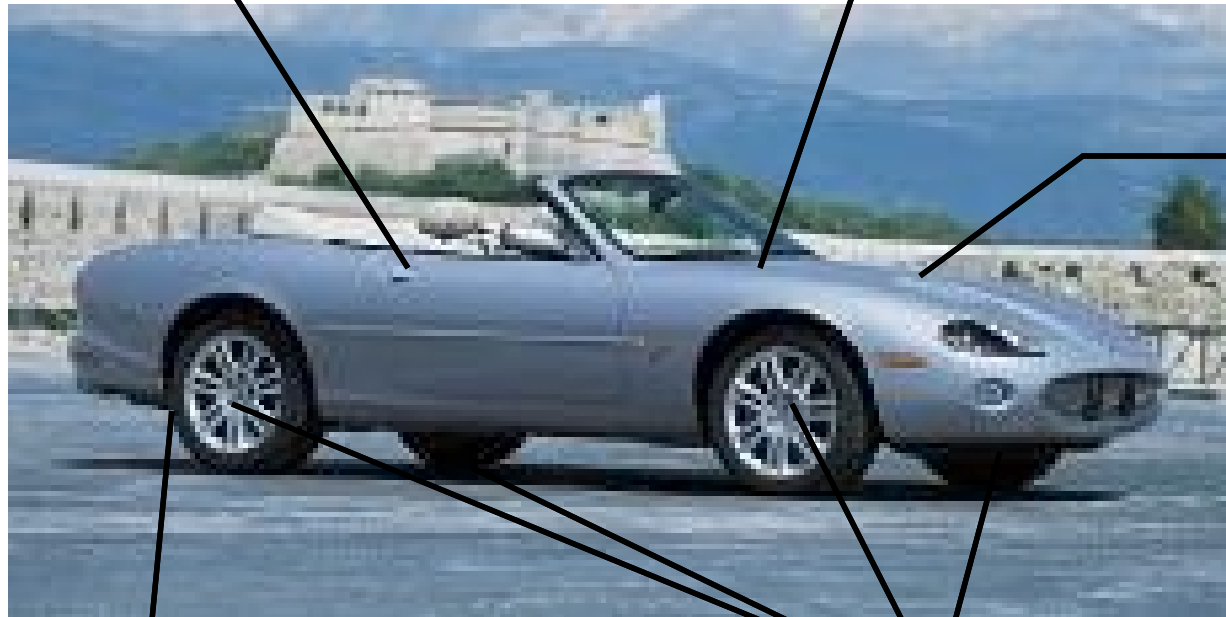
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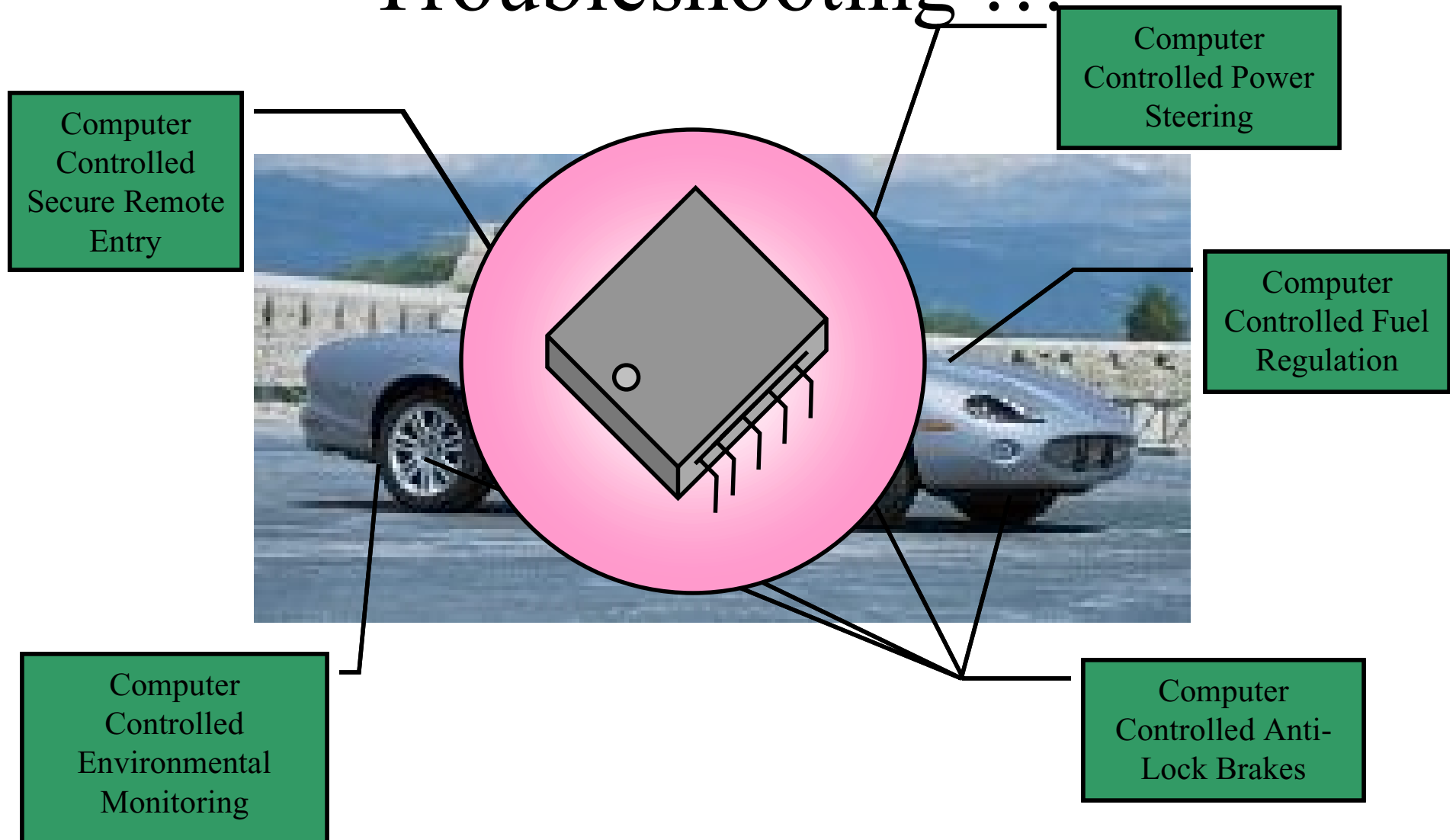
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Troubleshooting ...



Premise

The degree of regression testing required for a system is not proportional to the failure corrected, but to the extent of the change applied to correct the failure.

Measuring Extent of Change

- Traditional Methods
 - SLOC
 - SPR Opening/Closure Rate
 - Interface Tracing
- Proposal
 - Functional Decomposition and Synthesis
 - Total Architectural Change

Functional Dependency

- Functional Entities Exist at Multiple Levels of Resolution
- Entity-Relationship Views are Isomorphic with Hierarchies
- Hierarchies Can Establish “Order of Effect” Relationships Among Entities

Substantive Change

- Changes in Scope
- Changes in Nature
- Changes in Range
- Changes in Behavior

Tracing Change to Test Cases

- Dimensions of Testing
 - Breadth
 - Depth
- Dimensions of Change
 - Order
 - Substance

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Questions

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